



ST01002 US NP Sequence Listing.txt
SEQUENCE LISTING

<110> Aventis Pharma SA

ARNOULD-REGUIGNE, Isabelle

PRADES, Catherine

ROSIER-MONTUS, Marie-Francoise

NAUDIN, Laurent

LEMOINE, Cendrine

DEAN, Michael

DENEFLE, Patrice

<120> NUCLEIC ACIDS OF THE HUMAN ABCA12 GENE, VECTORS CONTAINING SUCH NUCLEIC ACIDS, AND USES THEREOF

<130> 03806.0537

<150> US 60/267,715

<151> 2001-02-12

<160> 38

<170> PatentIn version 3.0

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ST01002 US NP Sequence Listing.txt

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ST01002 US NP Sequence Listing.txt

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ST01002 US NP Sequence Listing.txt

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ST01002 US NP Sequence Listing.txt

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ST01002 US NP Sequence Listing.txt

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ST01002 US NP Sequence Listing.txt

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ST01002 US NP Sequence Listing.txt

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ST01002 US NP Sequence Listing.txt

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ST01002 US NP Sequence Listing.txt

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ST01002 US NP Sequence Listing.txt

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ST01002 US NP Sequence Listing.txt

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ST01002 US NP Sequence Listing.txt

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<220>

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<222> (1)..(2595)

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          20           25           30
Pro Val Ile Ile Phe Ile Ile Leu Ala Ile Thr Arg Thr Lys Phe Pro
          35           40           45
Pro Thr Ala Lys Pro Thr Cys Tyr Leu Ala Pro Arg Asn Leu Pro Ser
          50           55           60

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ST01002 US NP Sequence Listing.txt

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Ser	Asn	Leu	Asp	Lys	Asp	Ser	Ser	Leu	Ser	Phe	Gln	Ser	Thr	Gln	Val	115	120	125	
Pro	Glu	Arg	Arg	His	Ala	Ser	Leu	Ala	Thr	Val	Phe	Pro	Ser	Pro	Ser	130	135	140	
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ST01002 US NP Sequence Listing.txt

370

375

380

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Leu	His	Tyr	Leu	Asn	Ile	Tyr	Asn	Phe	Thr	Asp	Lys	Val	Phe	Phe	Pro
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ST01002 US NP Sequence Listing.txt

Asp	Lys	Met	Arg	Ser	Leu	Lys	Gln	Met	His	Leu	Pro	Arg	Ser	Val	Pro	690	695	700
Leu	Thr	Gln	Ala	Met	Tyr	Arg	Ser	Asn	Arg	Met	Asn	Thr	Pro	Gln	Gly	705	710	715
Ser	Phe	Ser	Thr	Ile	Ser	Gln	Ala	Leu	Cys	Ser	Gln	Gly	Ile	Thr	Thr	725	730	735
Glu	Tyr	Leu	Thr	Ala	Met	Leu	Pro	Ser	Ser	Gln	Arg	Pro	Lys	Gly	Asn	740	745	750
His	Thr	Lys	Asp	Phe	Leu	Thr	Tyr	Lys	Leu	Thr	Lys	Glu	Gln	Ile	Ala	755	760	765
Ser	Lys	Tyr	Gly	Ile	Pro	Ile	Asn	Thr	Thr	Pro	Phe	Cys	Phe	Ser	Leu	770	775	780
Tyr	Lys	Asp	Ile	Ile	Asn	Met	Pro	Ala	Gly	Pro	Val	Ile	Trp	Ala	Phe	785	790	795
Leu	Lys	Pro	Met	Leu	Leu	Gly	Arg	Ile	Leu	His	Ala	Pro	Tyr	Asn	Pro	805	810	815
Val	Thr	Lys	Ala	Ile	Met	Glu	Lys	Ser	Asn	Val	Thr	Leu	Arg	Gln	Leu	820	825	830
Ala	Glu	Leu	Arg	Glu	Lys	Ser	Gln	Glu	Trp	Met	Asp	Lys	Ser	Pro	Leu	835	840	845
Phe	Met	Asn	Ser	Phe	His	Leu	Leu	Asn	Gln	Ala	Ile	Pro	Met	Leu	Gln	850	855	860
Asn	Thr	Leu	Arg	Asn	Pro	Phe	Val	Gln	Val	Phe	Val	Lys	Phe	Ser	Val	865	870	875
Gly	Leu	Asp	Ala	Val	Glu	Leu	Leu	Lys	Gln	Ile	Asp	Glu	Leu	Asp	Ile	885	890	895
Leu	Arg	Leu	Lys	Leu	Glu	Asn	Asn	Ile	Asp	Ile	Ile	Asp	Gln	Leu	Asn	900	905	910
Thr	Leu	Ser	Ser	Leu	Thr	Val	Asn	Ile	Ser	Ser	Cys	Val	Leu	Tyr	Asp	915	920	925
Arg	Ile	Gln	Ala	Ala	Lys	Thr	Ile	Asp	Glu	Met	Glu	Arg	Glu	Ala	Lys	930	935	940
Arg	Leu	Tyr	Lys	Ser	Asn	Glu	Leu	Phe	Gly	Ser	Val	Ile	Phe	Lys	Leu	945	950	955
Pro	Ser	Asn	Arg	Ser	Trp	His	Arg	Gly	Tyr	Asp	Ser	Gly	Asn	Val	Phe	965	970	975
Leu	Pro	Pro	Val	Ile	Lys	Tyr	Thr	Ile	Arg	Met	Ser	Leu	Lys	Thr	Ala	980	985	990
Gln	Thr	Thr	Arg	Ser	Leu	Arg	Thr	Lys	Ile	Trp	Ala	Pro	Gly	Pro	His	995	1000	1005

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Asn	Ser	Pro	Ser	His	Asn	Gln	Ile	Tyr	Gly	Arg	Ala	Phe	Ile	Tyr
1010						1015					1020			
Leu	Gln	Asp	Ser	Ile	Glu	Arg	Ala	Ile	Ile	Glu	Leu	Gln	Thr	Gly
1025						1030					1035			
Arg	Asn	Ser	Gln	Glu	Ile	Ala	Val	Gln	Val	Gln	Ala	Ile	Pro	Tyr
1040						1045					1050			
Pro	Cys	Phe	Met	Lys	Asp	Asn	Phe	Leu	Thr	Ser	Val	Ser	Tyr	Ser
1055						1060					1065			
Leu	Pro	Ile	Val	Leu	Met	Val	Ala	Trp	Val	Val	Phe	Ile	Ala	Ala
1070						1075					1080			
Phe	Val	Lys	Lys	Leu	Val	Tyr	Glu	Lys	Asp	Leu	Arg	Leu	His	Glu
1085						1090					1095			
Tyr	Met	Lys	Met	Met	Gly	Val	Asn	Ser	Cys	Ser	His	Phe	Phe	Ala
1100						1105					1110			
Trp	Leu	Ile	Glu	Ser	Val	Gly	Phe	Leu	Leu	Val	Thr	Ile	Val	Ile
1115						1120					1125			
Leu	Ile	Ile	Ile	Leu	Lys	Phe	Gly	Asn	Ile	Leu	Pro	Lys	Thr	Asn
1130						1135					1140			
Gly	Phe	Ile	Leu	Phe	Leu	Tyr	Phe	Ser	Asp	Tyr	Ser	Phe	Ser	Val
1145						1150					1155			
Ile	Ala	Met	Ser	Tyr	Leu	Ile	Ser	Val	Phe	Phe	Asn	Asn	Thr	Asn
1160						1165					1170			
Ile	Ala	Ala	Leu	Ile	Gly	Ser	Leu	Ile	Tyr	Ile	Ile	Ala	Phe	Phe
1175						1180					1185			
Pro	Phe	Ile	Val	Leu	Val	Thr	Val	Glu	Asn	Glu	Leu	Ser	Tyr	Val
1190						1195					1200			
Leu	Lys	Val	Phe	Met	Ser	Leu	Leu	Ser	Pro	Thr	Ala	Phe	Ser	Tyr
1205						1210					1215			
Ala	Ser	Gln	Tyr	Ile	Ala	Arg	Tyr	Glu	Glu	Gln	Gly	Ile	Gly	Leu
1220						1225					1230			
Gln	Trp	Glu	Asn	Met	Tyr	Thr	Ser	Pro	Val	Gln	Asp	Asp	Thr	Thr
1235						1240					1245			
Ser	Phe	Gly	Trp	Leu	Cys	Cys	Leu	Ile	Leu	Ala	Asp	Ser	Phe	Ile
1250						1255					1260			
Tyr	Phe	Leu	Ile	Ala	Trp	Tyr	Val	Arg	Asn	Val	Phe	Pro	Gly	Thr
1265						1270					1275			
Tyr	Gly	Met	Ala	Ala	Pro	Trp	Tyr	Phe	Pro	Ile	Leu	Pro	Ser	Tyr
1280						1285					1290			
Trp	Lys	Glu	Arg	Phe	Gly	Cys	Ala	Glu	Val	Lys	Pro	Glu	Lys	Ser

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1295						1300						1305	
Asn Gly	Leu Met	Phe Thr	Asn Ile	Met Met	Gln Asn	Thr Asn	Pro						
1310			1315			1320							
Ser Ala	Ser Pro	Glu Tyr	Met Phe	Ser Ser	Asn Ile	Glu Pro	Glu						
1325			1330			1335							
Pro Lys	Asp Leu	Thr Val	Gly Val	Ala Leu	His Gly	Val Thr	Lys						
1340			1345			1350							
Ile Tyr	Gly Ser	Lys Val	Ala Val	Asp Asn	Leu Asn	Leu Asn	Phe						
1355			1360			1365							
Tyr Glu	Gly His	Ile Thr	Ser Leu	Leu Gly	Pro Asn	Gly Ala	Gly						
1370			1375			1380							
Lys Thr	Thr Thr	Ile Ser	Met Leu	Thr Gly	Leu Phe	Gly Ala	Ser						
1385			1390			1395							
Ala Gly	Thr Ile	Phe Val	Tyr Gly	Lys Asp	Ile Lys	Thr Asp	Leu						
1400			1405			1410							
His Thr	Val Arg	Lys Asn	Met Gly	Val Cys	Met Gln	His Asp	Val						
1415			1420			1425							
Leu Phe	Ser Tyr	Leu Thr	Thr Lys	Glu His	Leu Leu	Leu Tyr	Gly						
1430			1435			1440							
Ser Ile	Lys Val	Pro His	Trp Thr	Lys Lys	Gln Leu	His Glu	Glu						
1445			1450			1455							
Val Lys	Arg Thr	Leu Lys	Asp Thr	Gly Leu	Tyr Ser	His Arg	His						
1460			1465			1470							
Lys Arg	Val Gly	Thr Leu	Ser Gly	Gly Met	Lys Arg	Lys Leu	Ser						
1475			1480			1485							
Ile Ser	Ile Ala	Leu Ile	Gly Gly	Ser Arg	Val Val	Ile Leu	Asp						
1490			1495			1500							
Glu Pro	Ser Thr	Gly Val	Asp Pro	Cys Ser	Arg Arg	Ser Ile	Trp						
1505			1510			1515							
Asp Val	Ile Ser	Lys Asn	Lys Thr	Ala Arg	Thr Ile	Ile Leu	Ser						
1520			1525			1530							
Thr His	His Leu	Asp Glu	Ala Glu	Val Leu	Ser Asp	Arg Ile	Ala						
1535			1540			1545							
Phe Leu	Glu Gln	Gly Gly	Leu Arg	Cys Cys	Gly Ser	Pro Phe	Tyr						
1550			1555			1560							
Leu Lys	Glu Ala	Phe Gly	Asp Gly	Tyr His	Leu Thr	Leu Thr	Lys						
1565			1570			1575							
Lys Lys	Ser Pro	Asn Leu	Asn Ala	Asn Ala	Val Cys	Asp Thr	Met						
1580			1585			1590							

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Ala Val	Thr Ala Met Ile	Gln Ser His Leu Pro Glu Ala Tyr Leu
1595		1600 1605
Lys Glu	Asp Ile Gly Gly Glu	Leu Val Tyr Val Leu Pro Pro Phe
1610		1615 1620
Ser Thr	Lys Val Ser Gly Ala	Tyr Leu Ser Leu Leu Arg Ala Leu
1625		1630 1635
Asp Asn	Gly Met Gly Asp Leu	Asn Ile Gly Cys Tyr Gly Ile Ser
1640		1645 1650
Asp Thr	Thr Val Glu Glu Val	Phe Leu Asn Leu Thr Lys Glu Ser
1655		1660 1665
Gln Lys	Asn Ser Ala Met Ser	Leu Glu His Leu Thr Gln Lys Lys
1670		1675 1680
Ile Gly	Asn Ser Asn Ala Asn	Gly Ile Ser Thr Pro Asp Asp Leu
1685		1690 1695
Ser Val	Ser Ser Ser Asn Phe	Thr Asp Arg Asp Asp Lys Ile Leu
1700		1705 1710
Thr Arg	Gly Glu Arg Leu Asp	Gly Phe Gly Leu Leu Leu Lys Lys
1715		1720 1725
Ile Met	Ala Ile Leu Ile Lys	Arg Phe His His Xaa Arg Arg Asn
1730		1735 1740
Trp Lys	Gly Leu Ile Ala Gln	Val Ile Leu Pro Ile Val Phe Val
1745		1750 1755
Thr Thr	Ala Met Gly Leu Gly	Thr Leu Arg Asn Ser Ser Asn Ser
1760		1765 1770
Tyr Pro	Glu Ile Gln Ile Ser	Pro Ser Leu Tyr Gly Thr Ser Glu
1775		1780 1785
Gln Thr	Ala Phe Tyr Ala Asn	Tyr His Pro Ser Thr Glu Ala Leu
1790		1795 1800
Val Ser	Ala Met Trp Asp Phe	Pro Gly Ile Asp Asn Met Cys Leu
1805		1810 1815
Asn Thr	Ser Asp Leu Gln Cys	Leu Asn Lys Asp Ser Leu Glu Lys
1820		1825 1830
Trp Asn	Thr Ser Gly Glu Pro	Ile Thr Asn Phe Gly Val Cys Ser
1835		1840 1845
Cys Ser	Glu Asn Val Gln Glu	Cys Pro Lys Phe Asn Tyr Ser Pro
1850		1855 1860
Pro His	Arg Arg Thr Tyr Ser	Ser Gln Val Ile Tyr Asn Leu Thr
1865		1870 1875
Gly Gln	Arg Val Glu Asn Tyr	Leu Ile Ser Thr Ala Asn Glu Phe
1880		1885 1890

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Val	Gln	Lys	Arg	Tyr	Gly	Gly	Trp	Ser	Phe	Gly	Leu	Pro	Leu	Thr
1895						1900					1905			
Lys	Asp	Leu	Arg	Phe	Asp	Ile	Thr	Gly	Val	Pro	Ala	Asn	Arg	Thr
1910						1915					1920			
Leu	Ala	Lys	Val	Trp	Tyr	Asp	Pro	Glu	Gly	Tyr	His	Ser	Leu	Pro
1925						1930					1935			
Ala	Tyr	Leu	Asn	Ser	Leu	Asn	Asn	Phe	Leu	Leu	Arg	Val	Asn	Met
1940						1945					1950			
Ser	Lys	Tyr	Asp	Ala	Ala	Arg	His	Gly	Ile	Ile	Met	Tyr	Ser	His
1955						1960					1965			
Pro	Tyr	Pro	Gly	Val	Gln	Asp	Gln	Glu	Gln	Ala	Thr	Ile	Ser	Ser
1970						1975					1980			
Leu	Ile	Asp	Ile	Leu	Val	Ala	Leu	Ser	Ile	Leu	Met	Gly	Tyr	Ser
1985						1990					1995			
Val	Thr	Thr	Ala	Ser	Phe	Val	Thr	Tyr	Val	Val	Arg	Glu	His	Gln
2000						2005					2010			
Thr	Lys	Ala	Lys	Gln	Leu	Gln	His	Ile	Ser	Gly	Ile	Gly	Val	Thr
2015						2020					2025			
Cys	Tyr	Trp	Val	Thr	Asn	Phe	Ile	Tyr	Asp	Met	Val	Phe	Tyr	Leu
2030						2035					2040			
Val	Pro	Val	Ala	Phe	Ser	Ile	Gly	Ile	Ile	Ala	Ile	Phe	Lys	Leu
2045						2050					2055			
Pro	Ala	Phe	Tyr	Ser	Glu	Asn	Asn	Leu	Gly	Ala	Val	Ser	Leu	Leu
2060						2065					2070			
Leu	Leu	Leu	Phe	Gly	His	Ala	Thr	Phe	Ser	Trp	Met	Tyr	Leu	Leu
2075						2080					2085			
Ala	Gly	Leu	Phe	His	Glu	Thr	Gly	Met	Ala	Phe	Ile	Thr	Tyr	Val
2090						2095					2100			
Cys	Val	Asn	Leu	Phe	Phe	Gly	Ile	Asn	Ser	Ile	Val	Ser	Leu	Ser
2105						2110					2115			
Val	Val	Tyr	Phe	Leu	Ser	Lys	Glu	Lys	Pro	Asn	Asp	Pro	Thr	Leu
2120						2125					2130			
Glu	Leu	Ile	Ser	Glu	Thr	Leu	Lys	Arg	Ile	Phe	Leu	Ile	Phe	Pro
2135						2140					2145			
Gln	Phe	Cys	Phe	Gly	Tyr	Gly	Leu	Ile	Glu	Leu	Ser	Gln	Gln	Gln
2150						2155					2160			
Ser	Val	Leu	Asp	Phe	Leu	Lys	Ala	Tyr	Gly	Val	Glu	Tyr	Pro	Asn
2165						2170					2175			
Glu	Thr	Phe	Glu	Met	Asn	Lys	Leu	Gly	Ala	Met	Phe	Val	Ala	Leu

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2180														
Val	Ser	Gln	Gly	Thr	Met	Phe	Phe	Ser	Leu	Arg	Leu	Leu	Ile	Asn
2195						2200					2205			
Glu	Ser	Leu	Ile	Lys	Lys	Leu	Arg	Leu	Phe	Phe	Arg	Lys	Phe	Asn
2210						2215					2220			
Ser	Ser	His	Val	Arg	Glu	Thr	Ile	Asp	Glu	Asp	Glu	Asp	Val	Arg
2225						2230					2235			
Ala	Glu	Arg	Leu	Arg	Val	Glu	Ser	Gly	Ala	Ala	Glu	Phe	Asp	Leu
2240						2245					2250			
Val	Gln	Leu	Tyr	Cys	Leu	Thr	Lys	Thr	Tyr	Gln	Leu	Ile	His	Lys
2255						2260					2265			
Lys	Ile	Ile	Ala	Val	Asn	Asn	Ile	Ser	Ile	Gly	Ile	Pro	Ala	Gly
2270						2275					2280			
Glu	Cys	Phe	Gly	Leu	Leu	Gly	Val	Asn	Gly	Ala	Gly	Lys	Thr	Thr
2285						2290					2295			
Ile	Phe	Lys	Met	Leu	Thr	Gly	Asp	Ile	Ile	Pro	Ser	Ser	Gly	Asn
2300						2305					2310			
Ile	Leu	Ile	Arg	Asn	Lys	Thr	Gly	Ser	Leu	Gly	His	Val	Asp	Ser
2315						2320					2325			
His	Ser	Ser	Leu	Val	Gly	Tyr	Cys	Pro	Gln	Glu	Asp	Ala	Leu	Asp
2330						2335					2340			
Asp	Leu	Val	Thr	Val	Glu	Glu	His	Leu	Tyr	Phe	Tyr	Ala	Arg	Val
2345						2350					2355			
His	Gly	Ile	Pro	Glu	Lys	Asp	Ile	Lys	Glu	Thr	Val	His	Lys	Leu
2360						2365					2370			
Leu	Arg	Arg	Leu	His	Leu	Met	Pro	Phe	Lys	Asp	Arg	Ala	Thr	Ser
2375						2380					2385			
Met	Cys	Ser	Tyr	Gly	Thr	Lys	Arg	Lys	Leu	Ser	Thr	Ala	Leu	Ala
2390						2395					2400			
Leu	Ile	Gly	Lys	Pro	Ser	Ile	Leu	Leu	Leu	Asp	Glu	Pro	Ser	Ser
2405						2410					2415			
Gly	Met	Asp	Pro	Lys	Ser	Lys	Arg	His	Leu	Trp	Lys	Ile	Ile	Ser
2420						2425					2430			
Glu	Glu	Val	Gln	Asn	Lys	Cys	Ser	Val	Ile	Leu	Thr	Ser	His	Ser
2435						2440					2445			
Met	Glu	Glu	Cys	Glu	Ala	Leu	Cys	Thr	Arg	Leu	Ala	Ile	Met	Val
2450						2455					2460			
Asn	Gly	Lys	Phe	Gln	Cys	Ile	Gly	Ser	Leu	Gln	His	Ile	Lys	Ser
2465						2470					2475			

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Arg Phe Gly Arg Gly Phe Thr Val Lys Val His Leu Lys Asn Asn
2480 2485 2490

Lys Val Thr Met Glu Thr Leu Thr Lys Phe Met Gln Leu His Phe
2495 2500 2505

Pro Lys Thr Tyr Leu Lys Asp Gln His Leu Ser Met Leu Glu Tyr
2510 2515 2520

His Val Pro Val Thr Ala Gly Gly Val Ala Asn Ile Phe Asp Leu
2525 2530 2535

Leu Glu Thr Asn Lys Thr Ala Leu Asn Ile Thr Asn Phe Leu Val
2540 2545 2550

Ser Gln Thr Thr Leu Glu Glu Val Phe Ile Asn Phe Ala Lys Asp
2555 2560 2565

Gln Lys Ser Tyr Glu Thr Ala Asp Thr Ser Ser Gln Gly Ser Thr
2570 2575 2580

Ile Ser Val Asp Ser Gln Asp Asp Gln Met Glu Ser
2585 2590 2595

<210> 6

<211> 2516

<212> PRT

<213> Homo sapiens

<220>

<221> Xaa

<222> (1)..(2516)

<223> Xaa = any amino acid

<400> 6

Met Ala Ser Leu Phe His Gln Leu Gln Ile Leu Val Trp Lys Asn Trp
1 5 10 15

Leu Gly Val Lys Arg Gln Pro Leu Trp Thr Leu Val Leu Ile Leu Trp
20 25 30

Pro Val Ile Ile Phe Ile Ile Leu Ala Ile Thr Arg Thr Lys Phe Pro
35 40 45

Pro Thr Ala Lys Pro Thr Cys Tyr Leu Ala Pro Arg Asn Leu Pro Ser
50 55 60

Thr Gly Phe Phe Pro Phe Leu Gln Thr Leu Leu Cys Asp Thr Asp Ser

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65		70		75		80									
Lys	Cys	Lys	Asp	Thr	Pro	Tyr	Gly	Pro	Gln	Asp	Leu	Leu	Arg	Arg	Lys
				85					90					95	
Gly	Ile	Asp	Asp	Ala	Leu	Phe	Lys	Asp	Ser	Glu	Ile	Leu	Arg	Lys	Ser
			100					105					110		
Ser	Asn	Leu	Asp	Lys	Asp	Ser	Ser	Leu	Ser	Phe	Gln	Ser	Thr	Gln	Val
		115					120					125			
Pro	Glu	Arg	Arg	His	Ala	Ser	Leu	Ala	Thr	Val	Phe	Pro	Ser	Pro	Ser
	130					135					140				
Ser	Asp	Leu	Glu	Ile	Pro	Gly	Thr	Tyr	Thr	Phe	Asn	Gly	Ser	Gln	Val
145					150					155					160
Leu	Ala	Arg	Ile	Leu	Gly	Leu	Glu	Lys	Leu	Leu	Lys	Gln	Asn	Ser	Thr
			165						170					175	
Ser	Glu	Asp	Ile	Arg	Arg	Glu	Leu	Cys	Asp	Ser	Tyr	Ser	Gly	Tyr	Ile
		180						185					190		
Val	Asp	Asp	Ala	Phe	Ser	Trp	Thr	Phe	Leu	Gly	Arg	Asn	Val	Phe	Asn
	195						200					205			
Lys	Phe	Cys	Leu	Ser	Asn	Met	Thr	Leu	Leu	Glu	Ser	Ser	Leu	Gln	Glu
	210					215					220				
Leu	Asn	Lys	Gln	Phe	Ser	Gln	Leu	Ser	Ser	Asp	Pro	Asn	Asn	Gln	Lys
225					230					235					240
Ile	Val	Phe	Gln	Glu	Ile	Val	Arg	Met	Leu	Ser	Phe	Phe	Ser	Gln	Val
			245						250					255	
Gln	Glu	Gln	Lys	Ala	Val	Trp	Gln	Leu	Leu	Ser	Ser	Phe	Pro	Asn	Val
			260					265					270		
Phe	Gln	Asn	Asp	Thr	Ser	Leu	Ser	Asn	Leu	Phe	Asp	Val	Leu	Arg	Lys
		275					280					285			
Ala	Asn	Ser	Val	Leu	Leu	Val	Val	Gln	Lys	Val	Tyr	Pro	Arg	Phe	Ala
	290					295					300				
Thr	Asn	Glu	Gly	Phe	Arg	Thr	Leu	Gln	Lys	Ser	Val	Lys	His	Leu	Leu
305					310					315					320
Tyr	Thr	Leu	Asp	Ser	Pro	Ala	Gln	Gly	Asp	Ser	Asp	Asn	Ile	Thr	His
			325						330					335	
Val	Trp	Asn	Glu	Asp	Asp	Gly	Gln	Thr	Leu	Ser	Pro	Ser	Ser	Leu	Ala
		340						345					350		
Ala	Gln	Leu	Leu	Ile	Leu	Glu	Asn	Phe	Glu	Asp	Ala	Leu	Leu	Asn	Ile
	355						360					365			
Ser	Ala	Asn	Ser	Pro	Tyr	Ile	Pro	Tyr	Leu	Ala	Cys	Val	Arg	Asn	Val
	370					375					380				

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Thr Asp Ser Leu Ala Arg Gly Ser Pro Glu Asn Leu Arg Leu Leu Gln
 385 390 395 400
 Ser Thr Ile Arg Phe Lys Lys Ser Phe Leu Arg Asn Gly Ser Tyr Glu
 405 410 415
 Asp Tyr Phe Pro Pro Val Pro Glu Val Leu Lys Ser Lys Leu Ser Gln
 420 425 430
 Leu Arg Asn Leu Thr Glu Leu Leu Cys Glu Ser Glu Thr Phe Ser Leu
 435 440 445
 Ile Glu Lys Ser Cys Gln Leu Ser Asp Met Ser Phe Gly Ser Leu Cys
 450 455 460
 Glu Glu Ser Glu Phe Asp Leu Gln Leu Leu Glu Ala Ala Glu Leu Gly
 465 470 475 480
 Thr Glu Ile Ala Ala Ser Leu Leu Tyr His Asp Asn Val Ile Ser Lys
 485 490 495
 Lys Val Arg Asp Leu Leu Thr Gly Asp Pro Ser Lys Ile Asn Leu Asn
 500 505 510
 Met Asp Gln Phe Leu Glu Gln Ala Leu Gln Met Asn Tyr Leu Glu Asn
 515 520 525
 Ile Thr Gln Leu Ile Pro Ile Ile Glu Ala Met Leu His Val Asn Asn
 530 535 540
 Ser Ala Asp Ala Ser Glu Lys Pro Gly Gln Leu Leu Glu Met Phe Lys
 545 550 555 560
 Asn Val Glu Glu Leu Lys Glu Asp Leu Arg Arg Thr Thr Gly Met Ser
 565 570 575
 Asn Arg Thr Ile Asp Lys Leu Leu Ala Ile Pro Ile Pro Asp Asn Arg
 580 585 590
 Ala Glu Ile Ile Ser Gln Val Phe Trp Leu His Ser Cys Asp Thr Asn
 595 600 605
 Ile Thr Thr Pro Lys Leu Glu Asp Ala Met Lys Glu Phe Cys Asn Leu
 610 615 620
 Ser Leu Ser Glu Arg Ser Arg Gln Ser Tyr Leu Ile Gly Leu Thr Leu
 625 630 635 640
 Leu His Tyr Leu Asn Ile Tyr Asn Phe Thr Asp Lys Val Phe Phe Pro
 645 650 655
 Arg Lys Asp Gln Lys Pro Val Glu Lys Met Met Glu Leu Phe Ile Arg
 660 665 670
 Leu Lys Glu Ile Leu Asn Gln Met Ala Ser Gly Thr His Pro Leu Leu
 675 680 685
 Asp Lys Met Arg Ser Leu Lys Gln Met His Leu Pro Arg Ser Val Pro
 690 695 700

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Leu Thr Gln Ala Met Tyr Arg Ser Asn Arg Met Asn Thr Pro Gln Gly
705              710              715              720

Ser Phe Ser Thr Ile Ser Gln Ala Leu Cys Ser Gln Gly Ile Thr Thr
              725              730              735

Glu Tyr Leu Thr Ala Met Leu Pro Ser Ser Gln Arg Pro Lys Gly Asn
              740              745              750

His Thr Lys Asp Phe Leu Thr Tyr Lys Leu Thr Lys Glu Gln Ile Ala
              755              760              765

Ser Lys Tyr Gly Ile Pro Ile Asn Thr Thr Pro Phe Cys Phe Ser Leu
              770              775              780

Tyr Lys Asp Ile Ile Asn Met Pro Ala Gly Pro Val Ile Trp Ala Phe
785              790              795              800

Leu Lys Pro Met Leu Leu Gly Arg Ile Leu His Ala Pro Tyr Asn Pro
              805              810              815

Val Thr Lys Ala Ile Met Glu Lys Ser Asn Val Thr Leu Arg Gln Leu
              820              825              830

Ala Glu Leu Arg Glu Lys Ser Gln Glu Trp Met Asp Lys Ser Pro Leu
              835              840              845

Phe Met Asn Ser Phe His Leu Leu Asn Gln Ala Ile Pro Met Leu Gln
              850              855              860

Asn Thr Leu Arg Asn Pro Phe Val Gln Val Phe Val Lys Phe Ser Val
865              870              875              880

Gly Leu Asp Ala Val Glu Leu Leu Lys Gln Ile Asp Glu Leu Asp Ile
              885              890              895

Leu Arg Leu Lys Leu Glu Asn Asn Ile Asp Ile Ile Asp Gln Leu Asn
              900              905              910

Thr Leu Ser Ser Leu Thr Val Asn Ile Ser Ser Cys Val Leu Tyr Asp
              915              920              925

Arg Ile Gln Ala Ala Lys Thr Ile Asp Glu Met Glu Arg Glu Ala Lys
              930              935              940

Arg Leu Tyr Lys Ser Asn Glu Leu Phe Gly Ser Val Ile Phe Lys Leu
945              950              955              960

Pro Ser Asn Arg Ser Trp His Arg Gly Tyr Asp Ser Gly Asn Val Phe
              965              970              975

Leu Pro Pro Val Ile Lys Tyr Thr Ile Arg Met Ser Leu Lys Thr Ala
              980              985              990

Gln Thr Thr Arg Ser Leu Arg Thr Lys Ile Trp Ala Pro Gly Pro His
              995              1000              1005

Asn Ser Pro Ser His Asn Gln Ile Tyr Gly Arg Ala Phe Ile Tyr

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ST01002 US NP Sequence Listing.txt

1010		1015		1020
Leu Gln Asp Ser Ile Glu Arg Ala Ile Ile Glu Leu Gln Thr Gly				
1025		1030		1035
Arg Asn Ser Gln Glu Ile Ala Val Gln Val Gln Ala Ile Pro Tyr				
1040		1045		1050
Pro Cys Phe Met Lys Asp Asn Phe Leu Thr Ser Val Ser Tyr Ser				
1055		1060		1065
Leu Pro Ile Val Leu Met Val Ala Trp Val Val Phe Ile Ala Ala				
1070		1075		1080
Phe Val Lys Lys Leu Val Tyr Glu Lys Asp Leu Arg Leu His Glu				
1085		1090		1095
Tyr Met Lys Met Met Gly Val Asn Ser Cys Ser His Phe Phe Ala				
1100		1105		1110
Trp Leu Ile Glu Ser Val Gly Phe Leu Leu Val Thr Ile Val Ile				
1115		1120		1125
Leu Ile Ile Ile Leu Lys Phe Gly Asn Ile Leu Pro Lys Thr Asn				
1130		1135		1140
Gly Phe Ile Leu Phe Leu Tyr Phe Ser Asp Tyr Ser Phe Ser Val				
1145		1150		1155
Ile Ala Met Ser Tyr Leu Ile Ser Val Phe Phe Asn Asn Thr Asn				
1160		1165		1170
Ile Ala Ala Leu Ile Gly Ser Leu Ile Tyr Ile Ile Ala Phe Phe				
1175		1180		1185
Pro Phe Ile Val Leu Val Thr Val Glu Asn Glu Leu Ser Tyr Val				
1190		1195		1200
Leu Lys Val Phe Met Ser Leu Leu Ser Pro Thr Ala Phe Ser Tyr				
1205		1210		1215
Ala Ser Gln Tyr Ile Ala Arg Tyr Glu Glu Gln Gly Ile Gly Leu				
1220		1225		1230
Gln Trp Glu Asn Met Tyr Thr Ser Pro Val Gln Asp Asp Thr Thr				
1235		1240		1245
Ser Phe Gly Trp Leu Cys Cys Leu Ile Leu Ala Asp Ser Phe Ile				
1250		1255		1260
Tyr Phe Leu Ile Ala Trp Tyr Val Arg Asn Val Phe Pro Gly Thr				
1265		1270		1275
Tyr Gly Met Ala Ala Pro Trp Tyr Phe Pro Ile Leu Pro Ser Tyr				
1280		1285		1290
Trp Lys Glu Arg Phe Gly Cys Ala Glu Val Lys Pro Glu Lys Ser				
1295		1300		1305

ST01002 US NP Sequence Listing.txt

Asn Gly Leu Met Phe Thr	Asn Ile Met Met Gln Asn Thr Asn Pro
1310	1315 1320
Ser Ala Ser Pro Glu Tyr Met	Phe Ser Ser Asn Ile Glu Pro Glu
1325	1330 1335
Pro Lys Asp Leu Thr Val Gly	Val Ala Leu His Gly Val Thr Lys
1340	1345 1350
Ile Tyr Gly Ser Lys Val Ala	Val Asp Asn Leu Asn Leu Asn Phe
1355	1360 1365
Tyr Glu Gly His Ile Thr Ser	Leu Leu Gly Pro Asn Gly Ala Gly
1370	1375 1380
Lys Thr Thr Thr Ile Ser Met	Leu Thr Gly Leu Phe Gly Ala Ser
1385	1390 1395
Ala Gly Thr Ile Phe Val Tyr	Gly Lys Asp Ile Lys Thr Asp Leu
1400	1405 1410
His Thr Val Arg Lys Asn Met	Gly Val Cys Met Gln His Asp Val
1415	1420 1425
Leu Phe Ser Tyr Leu Thr Thr	Lys Glu His Leu Leu Leu Tyr Gly
1430	1435 1440
Ser Ile Lys Val Pro His Trp	Thr Lys Lys Gln Leu His Glu Glu
1445	1450 1455
Val Lys Arg Thr Leu Lys Asp	Thr Gly Leu Tyr Ser His Arg His
1460	1465 1470
Lys Arg Val Gly Thr Leu Ser	Gly Gly Met Lys Arg Lys Leu Ser
1475	1480 1485
Ile Ser Ile Ala Leu Ile Gly	Gly Ser Arg Val Val Ile Leu Asp
1490	1495 1500
Glu Pro Ser Thr Gly Val Asp	Pro Cys Ser Arg Arg Ser Ile Trp
1505	1510 1515
Asp Val Ile Ser Lys Asn Lys	Thr Ala Arg Thr Ile Ile Leu Ser
1520	1525 1530
Thr His His Leu Asp Glu Ala	Glu Val Leu Ser Asp Arg Ile Ala
1535	1540 1545
Phe Leu Glu Gln Gly Gly Leu	Arg Cys Cys Gly Ser Pro Phe Tyr
1550	1555 1560
Leu Lys Glu Ala Phe Gly Asp	Gly Tyr His Leu Thr Leu Thr Lys
1565	1570 1575
Lys Lys Val Phe Leu Asn Leu	Thr Lys Glu Ser Gln Lys Asn Ser
1580	1585 1590
Ala Met Ser Leu Glu His Leu	Thr Gln Lys Lys Ile Gly Asn Ser
1595	1600 1605

ST01002 US NP Sequence Listing.txt

Asn	Ala	Asn	Gly	Ile	Ser	Thr	Pro	Asp	Asp	Leu	Ser	Val	Ser	Ser
1610						1615					1620			
Ser	Asn	Phe	Thr	Asp	Arg	Asp	Asp	Lys	Ile	Leu	Thr	Arg	Gly	Glu
1625						1630					1635			
Arg	Leu	Asp	Gly	Phe	Gly	Leu	Leu	Leu	Lys	Lys	Ile	Met	Ala	Ile
1640						1645					1650			
Leu	Ile	Lys	Arg	Phe	His	His	Ala	Arg	Arg	Asn	Trp	Lys	Gly	Leu
1655						1660					1665			
Ile	Ala	Gln	Val	Ile	Leu	Pro	Ile	Val	Phe	Val	Thr	Thr	Ala	Met
1670						1675					1680			
Gly	Leu	Gly	Thr	Leu	Arg	Asn	Ser	Ser	Asn	Ser	Tyr	Pro	Glu	Ile
1685						1690					1695			
Gln	Ile	Ser	Pro	Ser	Leu	Tyr	Gly	Thr	Ser	Xaa	Gln	Thr	Ala	Phe
1700						1705					1710			
Tyr	Ala	Asn	Tyr	His	Pro	Ser	Thr	Glu	Ala	Leu	Val	Ser	Ala	Met
1715						1720					1725			
Trp	Asp	Phe	Pro	Gly	Ile	Asp	Asn	Met	Cys	Leu	Asn	Thr	Ser	Asp
1730						1735					1740			
Leu	Gln	Cys	Leu	Asn	Lys	Asp	Ser	Leu	Glu	Lys	Trp	Asn	Thr	Ser
1745						1750					1755			
Gly	Glu	Pro	Ile	Thr	Asn	Phe	Gly	Val	Cys	Ser	Cys	Ser	Glu	Asn
1760						1765					1770			
Val	Gln	Glu	Cys	Pro	Lys	Phe	Asn	Tyr	Ser	Pro	Pro	His	Arg	Arg
1775						1780					1785			
Thr	Tyr	Ser	Ser	Gln	Val	Ile	Tyr	Asn	Leu	Thr	Gly	Gln	Arg	Val
1790						1795					1800			
Glu	Asn	Tyr	Leu	Ile	Ser	Thr	Ala	Asn	Glu	Phe	Val	Gln	Lys	Arg
1805						1810					1815			
Tyr	Gly	Gly	Trp	Ser	Phe	Gly	Leu	Pro	Leu	Thr	Lys	Asp	Leu	Arg
1820						1825					1830			
Phe	Asp	Ile	Thr	Gly	Val	Pro	Ala	Asn	Arg	Thr	Leu	Ala	Lys	Val
1835						1840					1845			
Trp	Tyr	Asp	Pro	Glu	Gly	Tyr	His	Ser	Leu	Pro	Ala	Tyr	Leu	Asn
1850						1855					1860			
Ser	Leu	Asn	Asn	Phe	Leu	Leu	Arg	Val	Asn	Met	Ser	Lys	Tyr	Asp
1865						1870					1875			
Ala	Ala	Arg	His	Gly	Ile	Ile	Met	Tyr	Ser	His	Pro	Tyr	Pro	Gly
1880						1885					1890			
Val	Gln	Asp	Gln	Glu	Gln	Ala	Thr	Ile	Ser	Ser	Leu	Ile	Asp	Ile

ST01002 US NP Sequence Listing.txt

1895	1900	1905
Leu Val Ala Leu Ser Ile 1910	Leu Met Gly Tyr Ser 1915	Val Thr Thr Ala 1920
Ser Phe Val Thr Tyr Val 1925	Val Arg Glu His Gln 1930	Thr Lys Ala Lys 1935
Gln Leu Gln His Ile Ser 1940	Gly Ile Gly Val Thr 1945	Cys Tyr Trp Val 1950
Thr Asn Phe Ile Tyr Asp 1955	Met Val Phe Tyr Leu 1960	Val Pro Val Ala 1965
Phe Ser Ile Gly Ile Ile 1970	Ala Ile Phe Lys Leu 1975	Pro Ala Phe Tyr 1980
Ser Glu Asn Asn Leu Gly 1985	Ala Val Ser Leu Leu 1990	Leu Leu Leu Phe 1995
Gly His Ala Thr Phe Ser 2000	Trp Met Tyr Leu Leu 2005	Ala Gly Leu Phe 2010
His Glu Thr Gly Met Ala 2015	Phe Ile Thr Tyr Val 2020	Cys Val Asn Leu 2025
Phe Phe Gly Ile Asn Ser 2030	Ile Val Ser Leu Ser 2035	Val Val Tyr Phe 2040
Leu Ser Lys Glu Lys Pro 2045	Asn Asp Pro Thr Leu 2050	Glu Leu Ile Ser 2055
Glu Thr Leu Lys Arg Ile 2060	Phe Leu Ile Phe Pro 2065	Gln Phe Cys Phe 2070
Gly Tyr Gly Leu Ile Glu 2075	Leu Ser Gln Gln Gln 2080	Ser Val Leu Asp 2085
Phe Leu Lys Ala Tyr Gly 2090	Val Glu Tyr Pro Asn 2095	Glu Thr Phe Glu 2100
Met Asn Lys Leu Gly Ala 2105	Met Phe Val Ala Leu 2110	Val Ser Gln Gly 2115
Thr Met Phe Phe Ser Leu 2120	Arg Leu Leu Ile Asn 2125	Glu Ser Leu Ile 2130
Lys Lys Leu Arg Leu Phe 2135	Phe Arg Lys Phe Asn 2140	Ser Ser His Val 2145
Arg Glu Thr Ile Asp Glu 2150	Asp Glu Asp Val Arg 2155	Ala Glu Arg Leu 2160
Arg Val Glu Ser Gly Ala 2165	Ala Glu Phe Asp Leu 2170	Val Gln Leu Tyr 2175
Cys Leu Thr Lys Thr Tyr 2180	Gln Leu Ile His Lys 2185	Lys Ile Ile Ala 2190

ST01002 US NP Sequence Listing.txt

Val	Asn	Asn	Ile	Ser	Ile	Gly	Ile	Pro	Ala	Gly	Glu	Cys	Phe	Gly
2195						2200					2205			
Leu	Leu	Gly	Val	Asn	Gly	Ala	Gly	Lys	Thr	Thr	Ile	Phe	Lys	Met
2210						2215					2220			
Leu	Thr	Gly	Asp	Ile	Ile	Pro	Ser	Ser	Gly	Asn	Ile	Leu	Ile	Arg
2225						2230					2235			
Asn	Lys	Thr	Gly	Ser	Leu	Gly	His	Val	Asp	Ser	His	Ser	Ser	Leu
2240						2245					2250			
Val	Gly	Tyr	Cys	Pro	Gln	Glu	Asp	Ala	Leu	Asp	Asp	Leu	Val	Thr
2255						2260					2265			
Val	Glu	Glu	His	Leu	Tyr	Phe	Tyr	Ala	Arg	Val	His	Gly	Ile	Pro
2270						2275					2280			
Glu	Lys	Asp	Ile	Lys	Glu	Thr	Val	His	Lys	Leu	Leu	Arg	Arg	Leu
2285						2290					2295			
His	Leu	Met	Pro	Phe	Lys	Asp	Arg	Ala	Thr	Ser	Met	Cys	Ser	Tyr
2300						2305					2310			
Gly	Thr	Lys	Arg	Lys	Leu	Ser	Thr	Ala	Leu	Ala	Leu	Ile	Gly	Lys
2315						2320					2325			
Pro	Ser	Ile	Leu	Leu	Leu	Asp	Glu	Pro	Ser	Ser	Gly	Met	Asp	Pro
2330						2335					2340			
Lys	Ser	Lys	Arg	His	Leu	Trp	Lys	Ile	Ile	Ser	Glu	Glu	Val	Gln
2345						2350					2355			
Asn	Lys	Cys	Ser	Val	Ile	Leu	Thr	Ser	His	Ser	Met	Glu	Glu	Cys
2360						2365					2370			
Glu	Ala	Leu	Cys	Thr	Arg	Leu	Ala	Ile	Met	Val	Asn	Gly	Lys	Phe
2375						2380					2385			
Gln	Cys	Ile	Gly	Ser	Leu	Gln	His	Ile	Lys	Ser	Arg	Phe	Gly	Arg
2390						2395					2400			
Gly	Phe	Thr	Val	Lys	Val	His	Leu	Lys	Asn	Asn	Lys	Val	Thr	Met
2405						2410					2415			
Glu	Thr	Leu	Thr	Lys	Phe	Met	Gln	Leu	His	Phe	Pro	Lys	Thr	Tyr
2420						2425					2430			
Leu	Lys	Asp	Gln	His	Leu	Ser	Met	Leu	Glu	Tyr	His	Val	Pro	Val
2435						2440					2445			
Thr	Ala	Gly	Gly	Val	Ala	Asn	Ile	Phe	Asp	Leu	Leu	Glu	Thr	Asn
2450						2455					2460			
Lys	Thr	Ala	Leu	Asn	Ile	Thr	Asn	Phe	Leu	Val	Ser	Gln	Thr	Thr
2465						2470					2475			
Leu	Glu	Glu	Val	Phe	Ile	Asn	Phe	Ala	Lys	Asp	Gln	Lys	Ser	Tyr
2480						2485					2490			

ST01002 US NP Sequence Listing.txt

Glu Thr Ala Asp Thr Ser Ser Gln Gly Ser Thr Ile Ser Val Asp
 2495 2500 2505

Ser Gln Asp Asp Gln Met Glu Ser
 2510 2515

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21

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21

<210> 9

<211> 20

<212> DNA

<213> Artificial

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20

ST01002 US NP Sequence Listing.txt

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<210> 11

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<210> 12

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21

<210> 13

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ST01002 US NP Sequence Listing.txt

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gtaatcttca taggaaccat tgcg

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25

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ST01002 US NP Sequence Listing.txt

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ST01002 US NP Sequence Listing.txt

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ST01002 US NP Sequence Listing.txt

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ST01002 US NP Sequence Listing.txt

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28

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<220>

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cgagtgcccg taggagtg

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22

<210> 35

<211> 23

<212> DNA

<213> Artificial

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23

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ST01002 US NP Sequence Listing.txt

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<223> primer

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21

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<223> primer

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gagtcctgc caatagaac

19

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<223> primer

<400> 38

gcaaatgcag tatgtgacac

20

<210> 39

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<212> DNA

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ST01002 US NP Sequence Listing.txt

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<210> 40

<211> 68

<212> DNA

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60

tctagagc

68